

April 27, 1929

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AVIATION

THE OLDEST AMERICAN AERONAUTICAL MAGAZINE

April 27, 1929

Volume 11 Number 1

Crowd Curiosity

CURIOSITY is an admirable trait at times, but at others, it cannot be considered so. It is curiosity, for example, which causes a crowd to gather where an airplane is wrecked to consider a man who has been dragged from the water, apparently lifeless. It is curiosity that causes a crowd to converge at a line, or at the scene of an automobile accident, and it is curiosity that causes the spectators to swarm out on an airport when planes are landing and taking off, or when an accident occurs.

Just why the average person should not be satisfied with viewing these things at a respectable distance is a matter for the psychologist. The fact is, that most persons have an insatiable desire to be as near as possible to that thing which attracts their attention for the moment, and in getting too near, they may do irreparable harm. A man whose lungs have been filled with water needs air. The occupants of a plane that has crashed, if the crash is a serious one, may have to be freed from the rules of etiquette, in the needed assistance one is rendered.

So long as humans beings are not content to content where they can see all that goes on and yet be out of the way, it would seem that the only thing to do is to erect barriers to keep them there. Wire fences have been erected at some airports for this purpose, and even to work quite effectively, more so than the system of placing guards every few feet. It will be remembered that a fence is unsuitable, and is not open to argument. A fence could be placed along the inner edge of the runway in front of the hangars and at each end. Gates, of course, would have to be installed at various points so that the planes could be moved from the hangars to the field, and walks for passengers could be arranged in one end.

With an arrangement of this sort, the spectators could be admitted to the enclosure, where they would be able to observe the planes both in the hangars and on the field. The view would be equally as good as that obtained from the "betting ring" at a race track, and similarly the spectators would be out of the way. They would be unable to swarm out on the field and three or four times any work that was in program, and they also would be out of danger of planes in motion.

The Ideal Training Plane

IT WOULD SEEM, judging from the variety of types now on the market, that there is a wide variance of opinion as to what performance characteristics are valuable in primary training planes. At the same time, most pilots agree on the salient points. A training plane should not be over-powered, it should not fly itself, it should have excellent stability and should not be too sensitive to the controls. It should be rugged, not only that it may withstand the shocks of student landings alone, but also that it may be worked with comparative safety. In other words, it should be so rugged that the student may spin in with it and still will not be lost.

It should have a low landing speed, and it should not whip into a spin. Neither should it whip while spinning, nor should it spin in a position too nearly vertical, so that it will come out on its back if the stick is pushed a little far forward. The spin seems to be uncontrolled, except as far as exit is concerned, provided the plane is not as large as a bomber and is of the single-engine type. The larger the plane is, the more work it will require on the part of the student to fly it, and there will be a lessened tendency to over-control. But perhaps the pilots are wrong, and it is just the love for the old "Jenny" which causes them to regard these things as important.

//

No Smoking

A CERTAIN NUMBER of exhibitors at every aeronautical show insist on smoking and take offense when they are stopped by police officials. The smoking habit is strong, and although making violence the feature of the show, some the law it should not be done. Airplanes are still highly inflammable and there is usually a revival of gasoline left in their tanks. Besides this, the dryers and lubricants in most exhibition halls will catch fire very easily. If a fire should ever start it would spread inevitably and to the complete destruction of the building and all its contents, and it might lead to serious loss of life. If one such fire should occur it would ignore the thousands at all other shows and also raise the insurance rates to a serious degree.

OPERATION OF THE Pan AIRWAYS

Map showing the routes in operation and those planned for the Pan American Airways Inc. The solid lines indicate the routes in operation. The dotted lines indicate the routes in operation and the routes in operation. The solid lines indicate the routes in operation.



By JAMES P. WINES

PAN AMERICAN AIRWAYS, INC., the operating company for Aviation Corporation of the Americas, which flew its first transatlantic flight over the 110 mile route from Key West to Havana, is now operating planes to the British Isles, through the West Indies and through Central America over airways covering a total of 3,574 miles.

Over 1,800 miles of these routes, the West Indies and Central America, passengers are being carried regularly, and on every trip the planes are loaded to capacity. In fact, the early morning trip on one portion of the West Indies route has become so popular that two planes are employed for the purpose of carrying passengers. On the remaining 2,025 miles of airways, those through Central America, only mail is carried. However, it is expected that this route will be opened to passengers as soon as equipment can be procured and facilities for the handling of passengers prepared.

In addition to these routes, which are operated under the name of the Pan American Airways, 2,445 miles of airways in Mexico and along the west coast of South America are now being operated by affiliated and subsidiary companies. Within the next 60 days, 1,240 more miles of airways in Central and South America will be opened, and before the close of the year, 15,760 additional airway miles are expected to be added to the Pan American system, making it without question the greatest international air transportation system in the world.

Lack of other means of rapid transportation to the various points served by Pan American Airways, of course, is one great reason for the rapid development of the airline. Yet, speed and speed alone has never had a great appeal. It is the fact, that from the outset, the

Pan American organization has regarded safety, efficiency and reliability of the utmost importance, which is responsible largely for its tremendous growth and is making possible the continued expansion.

Officials of the company have issued from the start that air transportation demands a service for its passengers proportionately greater than the service rendered by the operation of other transportation systems in the speed of the airplane is greater than that of the railway train, the steamship and the motor vehicle. With this in mind, every conceivable comfort is provided for the air traveler on the Pan American lines.

As a result of operating agreements reached with two large rail systems and its associated lines, it is now possible to buy a through "rail-air" ticket from practically any city in the United States to Mexico in the Bahamas; Havana, Cienfuegos, or Santiago, Cuba; Port au Prince, Haiti; Santo Domingo, Dominican Republic; or San Juan, Puerto Rico. The purchase of such a ticket is noted by the latest possible rail line to Miami, where the American terminal of Pan American Airways is now located. There he changes to the air line in which he continues his journey. The system, of course, is reversed for a

American SYSTEM

traveler going from the Bahamas, or out of the West Indies continent, to the United States.

The eight airlines that are co-operating with the air line are the Atlantic Coast Line, Florida East Coast, both eastern and western divisions of the Pennsylvania system, the Richmond, Fredericksburg and Potomac, the New York, New Haven and Hartford, the Illinois Central, the Louisville and Nashville, and the Chicago and Eastern Illinois. As an example of the service provided, there are three limited trains from New York and three from Chicago daily, which make direct connections with the eastward planes.

The average time between the arrival of the train and the departure of the Pan American air line is about 45 minutes. Inasmuch as the passengers are met at the railway station and are transported to the Pan American International Airport in company owned automobiles, there is ample time for them to obtain a meal at the terminal before the departure of the plane. The field is about 26 miles from the center of Miami.

The passenger station of Pan American Airways at its Miami airport is one of the finest and most modern air terminal buildings in existence. It was designed by Delano & Aldrich, New York architects, who a study of the principal European terminals, and embodies a number of features of these with certain modifications in accordance with American ideas and with a view to the ever increasing volume of air passenger traffic. The building, which is two stories in height, is of concrete and steel construction, streets covered and measures 100 ft. in



An air view of the Pan American International Airport at Miami, Fla.

length and 80 ft. in width. The total construction cost was \$100,000.

The waiting rooms for incoming and outgoing passengers, which are separated by a wrought iron grill work partition, are located on the main floor. At one side of the station for incoming passengers are the offices of the United States customs, public health and agricultural services, since the field has been designated an Airport of Entry, while along one side of the waiting room for outgoing passengers are the offices of the traffic division of the company and a baggage room. There is no second floor in the building. The waiting room around the full height, except for a wide balcony around all four sides. This is occupied by the French and Spanish dining rooms, a kitchen, the purchasing agent's office, the office of the operations division, the radio control room, and an observation deck, which overlooks the field. A warning gong is sounded five minutes before plane time, and, in addition, the passengers in the dining room and waiting room are notified of the approaching time of departure by uniformed stewards. In the meantime

Stewards are shown in the Miami terminal and about to board the captain of a Pan American Airways Fokker F-40 before entering the aircraft.



On the Central American division, as a result of agreements reached with the various countries, Pan American Airways planes were allowed to use military fields in some instances, and in others, commercial fields. At Managua, for example, the airport used by U. S. Marine Corps aviators during the recent conflict is used by the Pan American planes operated on this division. Since the installation of a passenger service on this route was not anticipated immediately, the building of private airports was not considered necessary. However, preparations for the inauguration of a passenger service on this line are now underway.

While the work of preparing the foreign terminals was in progress, construction of the Pan American In-

tern mail and passenger traffic between Key West and the Cuban capital had increased steadily since the resumption of the line, but a grave even more rapidly after Pan American Airways shifted its base of operations to Miami, so much so in fact, that it was found necessary to operate the "Alamosa Air Limited" in two sections. That is, two planes, one known as the first and the other as the second section, leave the terminal at the same time and are utilized for the carrying of passengers. With the opening of the West Indies line, service to Havana was further augmented. The West Indies Air Limited, according to the present schedule, leaves Miami 1 p.m., and 1½ hrs. after the departure of the Havana Air Limited. Its run, of course, is the first stop on the route to San Juan.

The West Indies Air Limited operates only on Monday, Wednesday and Friday in confirmation with the postal requirements. To complete the Havana schedule Pan American Airways inaugurated the "Alamosa Air Express," which leaves Miami at the same time as the West Indies Air Limited, but operates only on Tuesday, Thursday, Saturday and Sunday. This service will be increased further when the Central American route is opened to passengers, since Havana is the first stop on this line also.

The operation of an airbase is similar to that of a railroad in



Men, passengers disembarking from a Pan American air base. Note the condition of the terminal platform. (R.H.M.) One foot of mail on the Miami-Havana line.

international Airport at Miami was started. Two hangars, each 100x100 ft. and capable of housing five of the large multi-engine planes, the runways and passenger stairs were constructed. This field and the foreign airfields were ready to be placed in operation late in the Fall of 1935. In fact, Pan American Airways transferred its base from Key West to Miami on Dec. 1. However, the opening of the new line was delayed because the company found it impossible to obtain equipment. Six Fokker F-10's, powered with Wasp engines, had been ordered in May, but all of these planes had not been delivered at that time.

As a result of the lack of equipment, the West Indies division was not opened until January 9. On that day, though, the first "West Indies Air Limited" of Pan American Airways took off from the Miami airport. On the same day, also, the first scheduled mail and passenger trip was made from Miami to Nassau, as the company had secured a contract late in November, 1934, for the carrying of mail over this route three times a week. It was not until Feb. 6, however, that Colonel Lindbergh, as technical adviser for the Pan American organization, piloted the first plane over the Central American division from Miami to the Panama Canal Zone.

way over, even to the placing of equipment. The second "mailing station" of a railway always is in a service where there is the greatest amount of traffic, while the side equipment is used where there is the least. This holds true of an airline as well. The new Fokker F-10's of Pan American Airways are used on the Miami-Havana-Cancun-Santiago route, entirely on the Santiago-Port au Prince-San Juan run, where the traffic is less heavy, the two Fokker F-5's are in service at the present time, but will soon be replaced with F-30's.

According to the policy of Pan American Airways, land planes are to be used on the overland routes and amphibians where there is a large stretch of water to be traversed. It is for this reason that Sikorsky S-30's are used on the Miami-Nassau run. The amphibian enhances the safety of the flying boat for over-water flying and the convenience of the land plane for passengers. At Miami, for example, the amphibians take-off from the airport. At Nassau they land in the

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AVIATION April 22, 1939

bay, and use a runway where the wheels are put down, and then taxi up to the station where it is at the head of the runway. On the Miami-Cancun line, amphibians are used to negotiate the loop from Havana to Balise, while two-engine landplanes are used from Balise on down.

Pan American Airways, Inc., is now one of the largest airline operators in existence. Its planes are operating over the 265-mile route from Miami to Havana, the 1,495-mile route from Miami to San Juan, the 188-mile line from Miami to Nassau, the Miami-Cancun route which is 2,025 miles in length, and is said, incidentally, to be the longest international air mail line in the world operated by one company. Pan American Airways also holds the contract for the new 400-mile international air mail line from Brownsville, Tex., to Mexico City.

This line, on which the first regular daily service for both air mail and passengers was inaugurated March 9 by Colonel Lindbergh, is being operated by Compañia Mexicana de Aviación, S. A., a subsidiary of Pan American Airways, Inc. This company has operated with great success over this territory for the last four years, and besides running the Brownsville-Mexico City line, it is also operating planes on regular schedules from Vera Cruz to Merida, where the line joins the Central American division of Pan American Airways.

On the South American continent, Pan American-Gruet Airways, Inc., which is affiliated with Pan American Airways, Inc., has been operating a regular air-mail and passenger service for several months along nearly one third of the entire west coast. In September, 1938, Peruvian Airways Corporation, a subsidiary of the Pan American-Gruet company, inaugurated a line between Lima, the capital city, to Talara. From A few days later this line was extended north from Talara to Guayaquil, Ecuador, and shortly after that it was extended south to Moledeno, Peru, forming a total operating airway 1,360 miles in length.

With the Peruvian service as a nucleus, Airways has conducted negotiations by way of Buenos Aires, Montevideo and Santiago, Colombia, to Orizaba, and south from Montevideo through Asuncion, Bogota, Antofagasta, Calama, Valparaiso and Santiago, Chile. The total distance from Orizaba to Santiago is 3,460 miles. Airways were also conducted east from Santiago over the Andes to Buenos Aires, Argentina, and Montevideo, Uruguay.

Under options contained in the existing contracts Pan American Airways plans to extend its air-mail two-coast from San Juan, which is now the eastern terminal of the West Indies division, by way of the Leeward and Windward Islands to Trinidad, Port of Spain, and also from Orizaba along the coast of Venezuela and

Colombia, via Turbo, Cartagena, and Barranquilla, Colombia, Maricao, Caracas, and Maracaibo, Venezuela, to Port of Spain, where the two lines will merge and continue south to Paramaribo, Dutch Guiana.

In addition to these proposed extensions, Pan American Airways, Inc., is negotiating for the rights for a semi-intercontinental airline between Puerto Rico and South America to operate along the east coast. This line it is expected will link with the west coast system at Puerto Rico and will extend up the entire east coast, linking with the present operating lines through the West Indies up to Central.

A SERVICE LINE from Havana to Panama by way of a San Juan Island, which brings the Canal Zone within 12 mi. of the United States is also proposed. In the Central American division, arrangements are being made for the operation of new lines to Guatemala City and San Salvador in order to complete the transportation system.

To operate over these lines, Pan American Airways, with the aircraft already in operation and the machines scheduled for immediate delivery will have one of the largest fleets of multi-engine planes, and by any other single company in the world. This fleet will include twenty-two two-engine, fourteen passenger land planes, and sixteen two-engine, eight-passenger amphibians.

During the first fourteen months of operation, more than 5,000 passengers and approximately 400,000 lb. of mail were carried in Pan American planes operating on the Havana pan alone, and during the first 60 days that the West Indies and the Bahama divisions were opened a total of 2,112 passengers were carried. Taking into consideration the tremendous amount of mileage done and the large volume of traffic which it has been necessary to handle, it is significant that no Pan American Airways plane operating on regular schedule has ever been more than 20 minutes late.

Up until Dec. 16, 1938 it is said that the company operated with the highest rated efficiency of any airport operator under contract with the Post Office Department. In this period the company set a record of 100 per cent efficiency for the completion of scheduled trips. On that date, however, a hurricane swept through the Bahamas and up the coast of Florida, and for the next two days all flights were cancelled while the entire fleet of planes was turned over to the Red Cross to aid in relief work. This cessation of service naturally reduced the efficiency mark slightly, but with the record it holds for reliability of operation and with the persistent made for the safety and comfort of the air traveler it is small wonder that Pan American Airways has developed its rapidly as it has.

A part of Pan American Airways fleet. Shown in the foreground is the passenger terminal at Miami.



KEEPING THE Dope Room CLEAN

BY WILLIS PARKER

KEEPING the floor of the dope room of an airplane factory clean usually presents a problem. The dried accumulations of dope tend tenaciously to the wood or concrete of which the floor may be constructed, and in the untreated state, accumulations present a serious fire hazard, yet it has been found from experiments that the material will not burn when the floor of a dope room is treated against it.

However, one of the easiest ways of clearing it off the floor is to burn it off. This is a recent discovery of the Alexander Aircraft Company, Colorado Springs, Colo. Like many other good methods in industry, this was discovered by accident, according to C. C. Hornaday, superintendent in charge of the factory. Sometime ago the dope room was cleared of equipment and materials, and a general clean up of the room followed.

Caring about for a method of loosening the hardened dope from the floor, Mr. Hornaday tried out a heavy solution of lye. The chemical reaction which followed was sufficient to create enough heat to cause a flame. Assuming that fire in the building would result in disaster, Mr. Hornaday watched frantically for a few moments hearing the flame out with his cap. After the fire was extinguished, it was found that the heat had separated the deposit from the floor, and that it was easily removable by scraping.

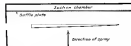
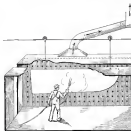
The position of the floor which had been covered with lye was small, but the experience gave birth to a very good idea. The small fires resulting from the chemical reaction with the lye did not cause a serious fire, or explosion. Perhaps lye was the best method of loosening the stuff. Experiments indicated that the hardened dope would not burn readily. So, after every precaution had been taken to remove a fire so that it could not get out of control, a small area was spotted with kerosene.

A switch was reached to the oil. The oil burned, but the dope did not. However, it was loosened as a result of the heat and responded to the scraping. Then, taking a spray several feet wide, Mr. Hornaday and his crew placed kerosene across one side of it. It was ignited, and, when it had burned sufficiently long to loosen the dope, they tackled it with scrapers and scraped the loosened dope ahead of them into the line of the flame. The loosened dope would burn then, and created enough heat to loosen the dope in the space ahead. Hereafter the workers merely pushed the line of flame ahead of them, until the entire floor had been treated in this fashion. The floor was as clean as a whistle and nothing more was necessary to prepare it for the paraffin.

The plan is excellent, according to Mr. Hornaday, if certain precautions are taken. Among them are:

1. To clear all inflammable materials out of the room.
2. To blow out all possible dust from walls, ceilings and eels.
3. To have water and fire extinguishers nearest in case a worker's clothing catches fire.
4. To keep the outside doors locked.

The floor of the Alexander company's dope room is

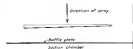
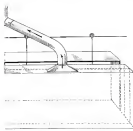


A sketch illustrating the removal of slaps and tail surfaces complete and a floor plan of the booth. The arrangement of

130 ft. square and is protected from the penetration of the dope by a heavy coating of paraffin, which serves to keep up the inside and prevent drippings of dope from seeping into the wood. Under the new house, where wing and other false surfaces are given their first three coats of clear dope, the floors are covered with heavy building paper which is removed and replaced weekly.

Three coats are given the false while the material is in a horizontal position and the dope is put on by hand with a brush. The last three coats of pigmented dope are applied with air brush while the materials are in a vertical position. These coats are applied in a booth of unusual construction and original design. The construction and design increase the efficiency of the ventilation system to almost 100 per cent.

Correctly speaking, the booth is in two sections though it might be described as being two booths set end to end with the back wall of one on the same line as the front wall of the other. The depth of each section is five feet. The height is eight feet and the width twenty feet, making the total length of the entire structure 40



through the cover holes in the plan of Alexander Aircraft Co. booth, the ductile plate and the ductile plate to clear dope

ft. Each is slanted at the top to permit the passage of the chains, or wires, by which the wings and tail surfaces are suspended from the overhead trolley system that is used to convey them through the dope room.

A wing, for example, passes into one section of the booth where a workman "shoots" one side of it with the dope. When he has completed his side, he shoots the wing on through into the next section where another worker, standing opposite "shoots" the other side of the wing, whereupon it is pushed out of the booth and to the drying rack.

The back of each section is covered with a ductile plate of sheet metal which stands out from the rear wall of the section about six inches. The plate is perforated by holes at intervals, spaced as rows horizontally and vertically. The dope holes are a drain through these holes into the ventilation system and carried out of the building.

The holes are not cut by mathematical precision over the 360 ft. area of the board, but are cut at points where they will draw off the air in equal amounts. For example, the holes in the top row are two inches in diameter and are spaced about twelve inches apart, while

the holes in the bottom row are three inches in diameter and spaced about 24 in. apart. The remaining holes in the surface are irregularly spaced and vary in diameter. The spacing was determined through experiments in which outboard was used in place of the metal plate, and holes were cut with a knife. After many cardboards had been mutilated, a spacing was found so that each hole allowed the same volume of air to pass out. The metal plate was cut from this pattern. By this system, the fastest are drawn out evenly over the entire area, whereas in the metal plate, the air current to the ventilating pipe never cut most rapidly, and the speed of air removal decreases as the distance from the duct increases. At the Alexander factory the branch pipe leading from each section of the booth is two feet in diameter, and the main pipe is three feet in diameter.

THE accuracy of the walls of the booths are stopped of accumulations of pigmented dope once a week. This is made possible by attaching the bottom of metal and treating the surface with a solution of soap and kerosene which separates the metal and the dope. By the end of the week the thickness of the deposit is sufficient to make it possible to strip it off like paper. After that the surface is given another treatment of soap and kerosene. The spray booth is in the center of the room and serves to carry away fumes from other parts of the room as well.

To eliminate the safety features of the room, there are 46 sets of double doors, or a total of 92 doors in the three exterior walls of the room, 92 doors in 330 head feet and every one of them constructed to swing outward under a very slight pressure.

The longer room is just half the size of the dope room and is in the main building. Here, also, the exterior walls are equipped with doors that swing out. Since longer is narrower than dope, it has been found best to post the surfaces of the materials while they are in a horizontal position instead of vertical. Hence the materials, which are usually small parts, are removed from the conveyor system when they come into the room, and are placed on wheeled racks fourteen feet long, four feet wide, and 30 in. high. The top of the racks are of lattice construction.

The materials remain on one rack throughout the various operations, which include mixing, priming, sanding, lacquering and polishing. Upon completion of the work they are removed to the carrier system and transported to the factory. The racks, being so small, may be pushed from one section of the room to another as the various operations require.

Both the longer room and the dope room are equipped with Venturi-type vent booms which permit fumes to be drawn in, heated and blown into the room in well-ventilated air being withdrawn by the action from the booms are placed near the ceiling following the theory that as the hot air near the ceiling cools and drops toward the floor, it will carry the fumes and dirt downward with it where they may be withdrawn more quickly by the suction fans.

AERONAUTICS BRANCH of the

Department of
Commerce

By DONALD E. KEYBORE

"**W**HAT would happen if the Government tried to regulate commercial aviation? I have asked this question of several men in the industry, pilots, operators, representatives of capital and those concerned with regulation. The reason will be apparent in a few moments.

"One pilot, who had failed to get his transport home, laughed at the question:

"We wouldn't have to bother with the exams and the 'needles,' he said. 'And we wouldn't have to be on the lookout for those blundering inspectors. But so much luck.'

Another pilot, of long experience and a good careful flier, shook his head:

"The game would not hold again, worse than before the Regulations came. I'd hate to see it. We had enough of that before the Department of Commerce took hold."

Another operator near the representation of capital had considered the possibility, but both admitted that it would certainly not be helpful.

"But," they added, "there still a chance of Congress repealing the Air Commerce Act."

"Suppose I told you that what, in effect, would have actually resulted in nullification of the Air Commerce Regulations, nearly happened recently?" I inquired.

Both looked very much surprised, and also thoughtful. But before explaining how this nearly occurred, it is necessary to review briefly regulations has done for aviation in the two years of its existence. The Air Commerce Regulations have been in effect, theoretically, since Dec. 31, 1925, but they were not "lightened up" until the late spring of 1927.

Before the Department of Commerce was given control of commercial aviation, matters were in disorder. Nearly everyone in the industry admitted the need for quick action, except the irresponsible ones who feared rules and regulations would handicap them—exactly what was needed. Utmost plans were being drawn, some disapproved from lack of experience and imagination—others inside in design and construction. The public had no way of telling what planes were sound, and sometimes even good pilots did not know of serious defects in new design craft.

Unscrupulous and unskilled pilots jeopardized the lives and the business opportunities of good fliers. Affairs covered up had judgment and plane faults in accidents

Big business stood off and shuddered when "crisis" was mentioned as a possible movement. The game was running wild, in spite of well intentioned pilots and operators who tried to play straight.

Then Lindbergh flew to Paris, and at about the same time the Department of Commerce issued its first warning to "come and get your license." Many had wanted what the law required. Now they learned to look at their applicants, along with hundreds of young fellows who had felt the lure of flying. The United States went wild over flying after Lindbergh's successful run to Paris. In the plane talk it took up at once. Many began to enter rivalry. Some operators, anxious to get what had been called the "gold rush in the air," hurried into the battle. For battle it was, with new men, new operators, new operators, new students and promoters struggling to get into the fray.

The Department of Commerce had set facilities to handle this unexpected rush. It was swamped overnight, particularly the licensing section. Complaints came from all over the country, even while the small form was working from 8:30 on the morning until 10 or 11 at night, and not an extra pay. The licensing system was frantically revised, pressed at all possible "red tape" and made to turn out twice as many licenses with the same force. But still it could not catch up under the avalanche that had been started. The Department pleaded for more personnel—getting only a small portion of what was really needed. A matter not known by those who were held up by non-issuing of licenses—approved type certificates, and other papers.

MANAGEMENT, by business began to waver up. Here was a national enthusiasm that should be capitalized. It investigated. Then it acted, cautiously at first, then with more confidence. It asked for standards before investing. These came to be, "banned planes, flown by licensed pilots, in conformity with Federal air traffic rules, and, where possible, over established airways." Insurance companies accepted them in their regulations. The public began to understand that licensing was usually indicative of safety.

Aviation has gone far ahead, beyond up by public confidence and enthusiasm, backed by capital—but all at the standards of the Department of Commerce were set up in cooperation with the responsible men in the industry.

Under this heavy pressure of activity, the Department has never caught up. The various divisions and sections are still trying to find "short cuts" to eliminate delay and get planes and men into the air—and to keep them there. This has been the watchword of the *Aeronautics Branch* since its beginning. It has never been a red-tape office, in the accepted sense.

BUT the pressure of planes, pilots, mechanics and mechanics has been and continues to be not by long ahead. Naturally, there have been respectable instances of lost business in the industry, underwriting to manufacturers, operators, pilots, schools, and airlines, largely because the Department has not had enough personnel—both field and office—to keep abreast of the swift current.

Not could it "slide" out of its difficulties, and broadcast this confidence to the industry. That is, so one of the "tricks" could do so, and so one of the methods approved the unfortunate situation.

In the past two years some cheese "bakers" and some men with big business connections have criticized the Department bitterly, especially the Regulation Division, with its licensing, inspection, and engineering sections.

These who neglected very surely had no thought to be less than the "broadside leader,"—and the danger is not permanently past.

Here is what happened:

The Budget Bureau, overwhelmed by large demands and tremendous salaries by Government departments, and quite accustomed to cutting these demands and leaving a dead end—(and to see my anxiety for a certain man in the appropriation bill for the Aeronautics Branch "Traveling expenses for inspectors") This item was to cover the expenses of inspectors in making their regular rounds through the districts. The Budget Bureau had found that regular disbursements, published through the districts, permitted more pilots and owners to be at specified places on certain dates and to be examined, or have their planes inspected. Only by these regular trips, completed once a quarter and longer again at once, could licensing and inspection remain close at "last stop behind."

BUT, said the Budget Bureau—an effort, "let the inspectors stop 'put.' There's no need of their running around all the time. Let the pilots come to them at one established base."

This cut out at first glance seems simple. But it reflects to this.

The Department could not reasonably compel an applicant to leave his place of business at a time specified. By his plane a long distance, and wait, perhaps several days "in line," for an examination. If it did it would use hundreds of planes, hold pilots on the ground, cause a hopeless jam at the inspector's post, and anger the industry. It would have to "inspect" applicants as passed themselves at a certain date, or "such a time as convenient," meanwhile giving letters of authority as was first done in regulation work. These letters of authority would run on and on, with renewals, until the applicant found it "convenient" to come for his examination. Any reasonable excuse would have to be accepted.

Hardly any comment on this is needed. Even the best intentioned pilots would wish their own pleasure to "drop in and see the inspector." Those who had any doubt about their ability would be strangely busy at some other part of the district. Months would pass before day

appeared, if at all. And even after that, ordering them to appear would not help much, unless an inspector had authority to go out and look them up.

The same applies to airplanes. When and if the owners cared to fly their planes to the inspector they would be inspected, not otherwise. All the time, letters of authority would flourish abundantly, the needed status of the industry would hang long and miserably at the Department of Commerce.

Under—capital withdrew!

For withdrew it would, unless the industry got busy at once and set up its own standards, or carried out the Department's system. That is based to expect of any industry, especially one growing so rapidly as aviation. And it would take time. During the period of change there would be chaos.

The insurance companies would be the first to close their doors to aviation. Stockholders would be no more for writing big policies. They would not take the word of operators, unsupported by other opinion, official in nature. Rates would soon, high as those of 1924 and 1925, perhaps higher. Passengers companies would close all airplanes flying from their books, until the risk was over. Operators who were unable to insure good steady pilots—and making them any day was. And in the piloting game there would be one great free-for-all. A student could run wild, taking passengers where he pleased, as long as he stayed a short distance from the airport.

TO see what this opinion would not be too far-fetched, I asked the opinion first mentioned in this article of Mr. Clarence M. Young, director of Aeronautics, Department of Commerce.

"If regulation were to come for six months, we'd be worse off than before we started," he told me. "It would be chaos of the worst kind. And it would take twice as long to get over with where we are now. And we aren't caught up yet."

This is no cry of "Woe!" Nor is it any severe criticism of the Budget Bureau, far from that. It is close to the industry cannot begin to appreciate what a disaster this step would be. Yet the outlook is none too bright, for this is a period of utmost public confidence in flying. The business is popular. And if the picture is not clear today by these means, it is easily easily repainted, it may be less clear tomorrow.

The Department of Commerce can do no more than it has done. Desperately, with every loyalty to the industry, it has tried to point out what would happen under such circumstances. It has said that the industry is not in strong place, and probably it is accustomed to suspecting personal desires to build up departments. The Department should have the hearty support and assistance of the industry in this matter. The industry has been too busy in the "gold rush" to learn these problems. It has been glad to receive what help it could from the Department. When it has been held up for any reason it has complained—naturally. But a little study of the situation, and understanding of support in the industry for men field and office personnel would result in elimination of the trouble—and result in direct benefit to those provided by the Air Commerce Act.

This is the first of a series of an article prepared by Mr. Keybores and drafted with the Aeronautics Branch Department of Commerce. The second article will appear as an early issue.—Ed.

Export SALES Budgets

By WESLEY FOWLER

CONSIDERABLE thought is being given by Central States aircraft manufacturers to the amount of money which can be spent for selling purposes. Production schedules have been drawn up and from all indications the total number of planes which will be produced in the United States during the current year will be approximately 8,000. It is believed that during 1959 a production figure of 10,000 will be reached. [These are conservative estimates; there was talk of a production of 8,000 for 1958 only last year and the talk now is of 10,000 for 1959.]

Few manufacturers here considered what the foreign market will absorb in the next few years and the aircraft industry, therefore, is at a loss to know how far it can go in spending its hard-earned cash for foreign advertising, demonstrations abroad and for general planning to get its share of foreign business. It is reasonable to believe that 10 per cent of the United States aircraft production will be exported, which would indicate that of the 8,000 airplanes produced during 1958, 800 should find their way overseas and to the bordering countries. Our industry has been so absorbed with problems of production, and some with meeting the demand within this country, that little or no energy has been exerted toward obtaining foreign business. Of the 4879 military and commercial planes produced during 1958 only 370 planes were exported—about four per cent—and most of these were sold more by accident than design. During the latter part of last year a few of the larger manufacturers became interested in the possibilities of foreign business.

They, however, have been working largely in the dark because there has been a lack of adequate data and practically no precedent upon which to base their activities. A few occasional foreign orders have come to them as the result of efforts of American Consuls and the Bureau of Foreign and Domestic Commerce.

AN ATTEMPT will be made here to analyze the business situation from abroad in the past few years and to budget what may be expected in the way of business during the next few years from the various countries not actively restricting the importation of American aircraft in their last convention, there are certain countries now restricting the importation of our aircraft which are expected to lift the ban within a short time. These countries, therefore, will be included among those for which market expectations are forecast.

It should be noted here, that it is impossible to budget foreign business in the same way that production and domestic sales figures are calculated, namely, on the basis of the quota clauses contained in distributors' and dealers' contracts. The few foreign distributors for airplanes have been found to be reluctant about signing a contract which embodies a quota clause, and it is believed that

FIG. 2—U. S. AIRPLANE EXPORTS
During 4 Years, 1953 to 1957

Country or Territory	No.	Value (\$ million)	Average Value (\$1000)	No.	Value (\$ million)	Average Value (\$1000)
Canada	40	98,000	2,450	19	250,444	13,181
Peru	41	70,000	1,707	40	70,000	1,707
Argentina	19	175,000	9,211	9	10,000	1,111
Chile	19	175,000	9,211	9	10,000	1,111
Costa	17	140,000	8,235	3	10,000	3,333
Colombia	16	140,000	8,750	3	10,000	3,333
Australia	15	140,000	9,333	3	10,000	3,333
Philippines	14	140,000	10,000	3	10,000	3,333
United Kingdom	13	140,000	10,769	3	10,000	3,333
France	12	140,000	11,667	3	10,000	3,333
Italy	11	140,000	12,727	3	10,000	3,333
Spain	10	140,000	14,000	3	10,000	3,333
Belgium	9	140,000	15,556	3	10,000	3,333
Sweden	8	140,000	17,500	3	10,000	3,333
Denmark	7	140,000	20,000	3	10,000	3,333
Netherlands	6	140,000	23,333	3	10,000	3,333
Switzerland	5	140,000	28,000	3	10,000	3,333
Portugal	4	140,000	35,000	3	10,000	3,333
South Africa	3	140,000	46,667	3	10,000	3,333
India	2	140,000	70,000	3	10,000	3,333
Japan	1	140,000	140,000	3	10,000	3,333
Other countries	1	140,000	140,000	3	10,000	3,333
Total	303	2,400,000	7,917	119	2,400,000	20,168

Values in million of U.S. dollars; figures in parentheses are percentages of total production

some time will elapse before market absorption in foreign countries can be estimated upon the basis used in this country.

The following analysis is strictly of a tentative nature, with intent on the tentative, because of the many uncertainties entering into foreign marketing and the varying financial condition of the respective countries. The unknown restrictions which may be placed against our aircraft, and it is believed that the following survey will have a practical application toward solving the export problems of the individual manufacturers. For example, if one plans scheduled a production of 800 aircraft for 1959 and the total airplane exports from all U. S. factories during that year are 800, or ten per cent of total estimated production, that manufacturer (who should export 80 airplanes if he is to get his share of foreign business for the year) would like to know just what foreign markets to concentrate, where to send representatives and demonstrators and where to place his foreign advertising. The following sales forecast by country is based upon exports of airplanes from 1953 to 1958, inclusive, and data obtained from the files of the

for AIRPLANE MANUFACTURERS*

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Philippines	14	140,000	10,000	3	10,000	3,333
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Denmark	7	140,000	20,000	3	10,000	3,333
Netherlands	6	140,000	23,333	3	10,000	3,333
Switzerland	5	140,000	28,000	3	10,000	3,333
Portugal	4	140,000	35,000	3	10,000	3,333
South Africa	3	140,000	46,667	3	10,000	3,333
India	2	140,000	70,000	3	10,000	3,333
Japan	1	140,000	140,000	3	10,000	3,333
Other countries	1	140,000	140,000	3	10,000	3,333
Total	303	2,400,000	7,917	119	2,400,000	20,168

Values in million of U.S. dollars

Aeronautics Section of the Bureau of Foreign and Domestic Commerce, Department of Commerce, on market conditions both favorable to and inhibiting against the exportation of American airplanes. The estimated balance of export restrictions may seem unreasonably optimistic. It is believed, however, that a market exists in each country for the approximate number of planes listed for each. Results during the next few years may not bear out these figures but by adequate and appropriate sales effort an individual manufacturer should sell at least his share in each market listed. This share would be on the basis of the percentage of a specific factory's production to total production, or, if 800 airplanes are produced by one factory, 80 should be exported, or approximately budgeted as total sales to Brazil, for 1958, therefore, that manufacturer should sell at least 80 planes.

By grouping the countries geographically (Fig. 3) we find that Latin America, including Mexico, the West Indies and Central and South America absorbed 70 per cent of the export production of planes in Canada; that the Far East including Australia absorbed 20 per cent and Europe 10 per cent. Canada, which is consid-

ered by most manufacturers, even of products other than those attractive to the domestic market, should continue to be an excellent field.

In the estimates for 1959 and 1960 (Fig. 2) it was considered that several important manufacturers have established plants there which will mean that such shipments of airplanes will not be shown as such in official statistics, but will be included under the classification of "airplane parts." The 15 flying clubs in Canada are now being equipped with Lincolns. It is reasonable to suppose that when some of our light and inexpensive training planes, with new production engines, have the "long" sales out of them, they will be sold for club use in Canada. For this reason the unit value estimate for 1959 is shown to decline in the case of Canada.

Peru is a country which although undergoing difficulties from an economic standpoint could see air transportation as a means toward economic recovery. The present aviation operations in the country and the advent of the international airline from the United States indicate that the sales horizon for this country is conservative.

THE MEXICAN country listed did not present a very large market during 1958, but 1959 starts off well with the sale of one American plane to the Argentine, valued at \$200,000. The few sales made there last year point to an opportunity for considerable expansion in this area, a worthy area which has signaled an interest in aviation and is willing to be sold further on the idea. There have been no American commercial airplanes demonstrated in this market.

Mexico is another country suffering from economic instability, and there is every reason to believe that a few more services would help it out of its present trouble. There are several lines now in operation, all of which use American equipment. It is expected that early this year the Government will have concluded the purchase of some American military aircraft. Some of the estimated exports will undoubtedly be to the American operating company, but they nevertheless will be sales of aircraft for use in Mexico which will contribute to the prosperity of the country and to the profits of our airplane factories.

There is now some important business pending in Brazil for training planes and aircraft for transport purposes. It is thought that the first manufacturer to concentrate plans of this type in that country will find the effort worthwhile, if not from the immediate orders from the standpoint of having made a start in the market. It will be noted that the estimated average valuation for most countries show a decrease for 1959 over those for 1958. Recall, as well as some of the other countries, may be considered something of a price marker. Furthermore, by 1959 it is thought that ac-

*Although an average unit value of this article was left out of the April 14 issue of AVIATION. The article is therefore somewhat less than 100.

FOREIGN ACTIVITIES

Extend Insurance
For Air Travelers

BERLIN (Continued)—Following the apparently successful operation of the automatic travelers' insurance policy in London and German planes, the arrangement has been extended to all class Seven and Cuckoo/Continental flights. Premiums for this extension of the existing coverage are flat. Those wishing additional insurance may do so at their own expense.

On the Berlin-Dresden-Frankfurt-Vienna line, for instance, passengers are insured at an amount of \$150. In case of death, a full total and permanent disability and injury compensation being extended on a sliding scale. The Soviet insurance amounts to \$500 in case of death, \$100 for total disability and \$4 a day for temporary disability for as long as the passenger is unable to resume work.

Indian Airways, Ltd., Active

LONDON (Continued)—Following the British Government's policy of encouraging the various arms of the Empire to coordinate their own services of the fast-growing empire services it has been announced that the Indian Airways, Ltd., underlines the extension of the present London-Karachi line through to Delhi. A contract has been placed with the airline to be in operation by the year. Another contract has been placed for the Delhi-Colombo service which will be opened next year. Indian Airlines is continuing and steadily the service will extend through to Australia by way of Singapore.

South African Plans Service

CAPE TOWN (SOUTH AFRICA)—Air transport service between here and various important communities in South Africa are being promoted under financial encouragement of the government and private interests. Bidders of plans for a monthly service between the island and Cape Town and another across mainland to a base between here and Johannesburg has been reported to be considering using American planes. The latter is estimated to be in a large American all metal tri engine monoplane.

Slovakies For Moscow

HONOLULU (U.S.A.)—Inter-island Airways, which plans to open an air mail, passenger and freight service between Honolulu points in the Hawaiian archipelago this summer, has ordered four Sikorsky helicopters the first to be delivered about August 9.

Roman Rzeszow Mail Line

OTTAWA (CANADA)—An air service between the city, Montreal and Rzeszow was resumed Tuesday, April 25. The semi-weekly trips each stopped at the inter-Alpine route from 26 to 36 hours and made from the Montreal Province about eight hours. Arrangements are being made to light the airport at Rzeszow five times in that night. Flying may be delayed.

Foreign News Briefs

An electrical device attached to the compass of a plane has been developed in England to operate an alarm signal which warns the pilot, if he allows the needle to go away from its course.

It is reported in London on the anniversary of the successful east-west trans-Atlantic flight that Capt. Harman noted declared that the timing in the present practice machine for routine trans-Atlantic flight.

Jose Amador and Rose Lefevre, French women are on their way to San Francisco to prepare for a trans-Atlantic flight attempt in May, using a French monoplane with Hispania-Suiza engines.

A large and thoroughly up to date airport is to be constructed in Cartagena, Colombia, to include a hotel, an aircraft and complete repair shop. Scotland opened its first and passenger service between Glasgow and the Canal zone April 17. The first flight was made by a Douglas Wing and a Jetstream.

Powerful rain equipment is expected to be able to provide more-

ation between the airport and the Canal Zone. Naval radio station will be moved between the Gulf of Mexico and the American station during the next Mediterranean flight.

The new Fairchild which plane left for commercial use is still in the service of the Mexican Airlines Company and in the last of the company's fleet has been 150 hours without a major overhaul in the last five it has been used on a variety of transport services, including service to the Canal Zone and other supplies to the Canal Zone.

A house to manufacture Fokker aircraft has been acquired by the Aero Aeroplane Manufacturing Company in Luxembourg.

English, four countries signees at Croydon, South London and never are to be implemented by fields at Harlow, Hull and Leam.

Traps in Australia being used recently by Capt. Blacklock E. Davis, who is preparing in England the National Flying Services Ltd.

American and Canadian aeronautical groups are reported interested in the Canadian air and aircraft equipment to be placed by the Winnipeg Flying Club, May 25. The next will be held on the afternoon and the exhibition of planes, accessories and equipment in the evening.

Pen American Airways is sending a survey Sikorsky amphibian along the southern coast of South America to study air transportation possible in that area.

Colonel Feller announced the beginning of construction at Montreal, Quebec, where a 100-acre airport is being built.

French Launch De Luxe Machines



Markwell No. 176 Tacker. Famous biplane used by French Air Force.

THE BUYER'S LOG BOOK



Trasson Steel Hanger Door

A SPECIAL door for airplane hangers in which limited space is available for operation of the door with opening and closing, has been developed and is being manufactured by the Trasson Steel Company of Youngstown, O.

This door is applicable to any kind of hangar construction, and is not limited to Trasson Standard Steel Buildings. The door design is in hanging with the frame of the door is of heavy gauge tubular alloy steel, welded and reinforced at the corners and electrically welded at all joints, or if preferred structural steel shapes may be substituted for tubes in the frame.

The lower sections are solid steel panels made from cold rolled copper alloy sheets, full welded, reinforced and painted. Any desired area may be built of standard steel window sections to permit adequate lighting of the hangar. The door design is in hanging with reinforced structural practice, thus proving to be a building a unified and effective exterior.

Trasson hanger doors are not suspended from overhead tracks, but are equipped with Trasson roller bearing tracks operating on tracks embedded in the concrete floor. Aluminized lubrication is custom track in any operating condition. Doors of this type 35 ft high and to 20 ft. across, and in the Aluminized Aluminized building at Newark, N.J., can be closed easily and quickly in one hour.

A light guide rail at the top inserts accurate alignment without adding to the weight supported by the wide-spanning overhead structure. Thus, doors are made to operate in either of two ways. After all of the modern hangars, including the one at New York City, Newark, N.J., the Canadian Colonial Airlines at Albany, N.Y. and that at the Newark (N.J.) airport, use straight slide doors which when opened disappear into tunnels or other auxiliary portions of the hangar structure.

This arrangement is popular because it leaves the active hangar opening unobstructed, admitting a 300 ft. plane to a 100-ft. hangar. The architectural effects produced in most new type hangar construction provide convenient storage space for the doors of this type when stored.

Round-the-corner doors, which fit snugly against the sides of the hangar when the opening are used in the U.S. Air Service assembly building at Wright Field Dayton, O., on the N.A.T. hangar at Chgo., and on many other up to date structures. They are preferred when the plan of the building does not provide space for the opening of the straight slide doors, and where there is no objection to narrowing slightly the door opening by storing opened doors at the sides.

In addition to these specialized hangar doors the Trasson Steel Company also manufactures steel roof decks of light weight, which insulated and waterproofed are widely used on all kinds of hangars. A recent installation of this type of roof is on the new United States Navy Hangar at Coco Solo, Canal Zone. Complex roof hangers of standard parts are now being forwarded.

Steel roofs, steel windows, doors, concrete reinforcing and other standard building parts have been tested through widely varied and hangars are under all kinds of conditions. These have been adapted to the requirements of aviation and are included in the products of the company.

Special literature on the new hangar doors, as well as other Trasson products, has been prepared and will be mailed to anyone asking for information.

Kona Angle Drill

A NEW model of close-quarter angle drill is offered by Charles A. Kona of Rochester, New York. It is a tool which makes possible the drilling of holes up to 1 in. in diameter, at an angle of 90 deg., and within a space between walls as narrow as one inch.

The drifter has one of the most compact design of narrow proportions and driven by means of flexible shaft, which is very easy to be driven from any source of power available. A small electric drill has been found by experience to be satisfactory for this purpose.

The transmittal mechanism in the head of the drill consists of special gears at a ratio of 3 to 1 and a very small running gear which is efficient in the results. The greatest field of usefulness for the new tool will probably be developed in the fabrication of structural members of aircraft. This class of work entails the drilling of numerous holes and rivet holes, usually of small size, but very often in places extremely difficult to reach with the type of tools heretofore available.

Markwell No. 176 Tacker

MANY aircraft manufacturers have indicated satisfaction by the use of the No. 176 tacker manufactured by the A. C. Markwell Mfg. Co., 175 Franklin St., New York City. This stapling machine is used in fastening plywood to the wing spars, locking center girders in certain types of wooden rib construction, fastening together various pieces of rib and wing stay assemblies, preliminary fastening of ribs to the spars, locking rubber strip plates on gaskets, locking upholstery and lining body of the plane and stitching thin duralumin sheets to the body.

The machine is constructed of proved steel plates and can withstand extremely rough usage. It has a capacity of 100 staples together with a narrow chamber holding 400 wire. It is light and easy to operate.



Brake Testing Machine

THE Cowden Dynamic Brake Testing Machine is essentially an electric motor driven transmission dynamometer. It measures the braking effect of such linked wheel of an airplane by turning the wheel when the brake is applied and measuring the force in terms of "pounds of road pull." This device is manufactured by The Cowden Machine Works, Proctor, Mass.

When the current is turned on the electric motor drives a worm and worm gear through a universal joint. The shaft of the worm gear and the rear roll shaft are in line. The worm gear shaft has a pinion bearing in the end of the rear roll shaft. These two shafts are connected by a coupler shaft having a gear and pinion meshing with driving gear and pinion on the roll shaft and worm gear shaft. This coupler shaft is mounted in a housing which oscillates about the worm gear and roll shafts. The slow nut of gears forms an epicycloid train, the torque of which train is carried through a scale beam, the torque of which train is calculated in terms of "pounds of road pull." Each wheel is operated by a separate dynamometer unit. The entire transmission is mounted on ball bearings and alloy steel gears are used, all operating in a bath of oil to eliminate wear. The front roll is connected to the rear roll by a roller chain.

The speed indicator is such that heavy braking torque can be measured with a comparatively small motor. The airplane wheel travels about 11 ft. per minute. This slow speed enables brakes to be adjusted while the brake motor is running and also enables the magnitude of the braking effort to be noted at any point during the revolution.

The airplane to be tested is turned up to the machine and then each brake motor unit can be moved into position so that the airplane wheels will be in line with the drums approaching each unit, the units being mounted on angled wheels operating on two rolls. The airplane is rolled into position so that each wheel runs on the rolls of each dynamometer unit. The plane is then anchored so that it will not move when the testers are started.

Two models are manufactured: the 1 hp. machine for 4,000 lb. weight of airplane on both wheels combined, and the 3 hp. machine for 20,000 lb. weight of airplane on both wheels combined.

Valve and Cotter Pin Tool

AN INSTRUMENT for inserting, spreading and pulling cotter pins has been developed by the Edwards & Spencer Co., Hartford, Conn. The B & S Valve and



The B & S Valve and Cotter Pin Tool

Cotter Pin Tool is 6 feet 6 inches long, and has a black lacquer finish.

The jaws of the tool hold the cotter pin for inserting and the extremity of one of the grip handles which is flat and leveled, spreads the cotter pin. A hooked extremity is provided on the other grip handle which is needed to pull the pin out.



SIDE SLIPS

By Robert R. Osborn

A number of the Australian papers are making some very pointed comments on the "Southern Cross fiasco," and, referring to the news reports, Captain Kingsford-Smith and I have entered our protest there for which, just another proof of the truth of Mr. Heywood Hanson's famous comment that "There is as living as a ferry boat that slide." Apparently the only way to stay a hero is to quit while you're still chosen—and we'll bet that every student with two or more heads would like to give Colonel Lindbergh some pointers on the proper way to make one-wheel landings.

At Roosevelt Field, Long Island, the other day we saw some photographs being taken of what appeared to be one of the Old Gold biennially cigarette tests. We didn't have time to inquire which cigarette had come out first in that particular test but our impression is that most pilots are getting themselves into and out of so many embarrassing situations that they must be fighting Harold's meat of the race.

"BRANDS AND SNAKE LASH FLIES." Poem—Headline. The intrepid Aviator says he can remember not so very long ago when the proper answer to any comment about his hot sex "Well, buddy, if you don't like the stuff, why not drop in and tell General Prentiss about it?"

A news story says that Mr. William B. Leeds and a party of four based a *Solarship* airplane to go over to a New Jersey lake when the fishing season opened recently. We're sorry to have to say it, and you'll admit that it is seldom that we descend to the sort of humor but we must say that this should be closed, obviously, as "fly fishing."

Ask friends. As suggested in the sales department of our shop.

All of the "aviation centers of the United States" will be glad to hear that Chicago is now the aviation center. That city's superintendent of airports is expected to have said in a recent speech, "Chicago is now the aviation center of the country, and in March 3,360 landings were made, which is more than that of any other airport in the world except Tempelhof, near Berlin."

W. P., one of the instructors for the Civilian Flying Service school, says that if landings are to decrease the air center of the United States he would soon enough have the championship back in New York. Says he has a student who always makes at least five landings each time he lands and 3,360 landings would be a mere couple of hours flying for him.

At the Detroit Show...

visiting test pilots agreed that the Taper-Wing Sport WACO demonstrated more sheer maneuverability than any other airplane they had ever seen... military or commercial.



This WACO Model is being sold to several foreign governments for advanced training purposes.

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Look at its records... fastest time England to Australia... first solo flight between these continents... longest solo flight ever made... fastest time England to India... first non-stop flight London to Rome. Despite hazards of changing weather, heat, cold and bumpy air the Avian carries on. It reaches its destination.

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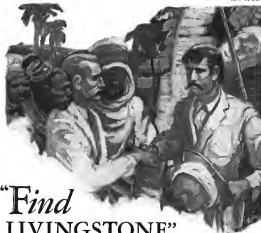
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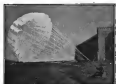
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The first engines of the type were manufactured by the de Havilland Company in England early in 1927. There followed a series of triumphs that attracted world



wide attention . . . A "Gipsy" won the great English air classic—the 1100 mile race for the King's cup . . . Another established a new class record by climbing 20,000 feet in 70 minutes . . . Still another broke the world's light plane record by remaining aloft for 24 hours.

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With the Wright "Gipsy" in quantity production late this summer, American manufacturers of light planes, and the public, will have available at last a quality low-priced engine—built to the usual high standards of Wright. Thus

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With alterations made by Wright to conform to American production standards, specifications of the "Gipsy" will be:

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BORE—4½".
STROKE—5".
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LENGTH OVERALL (Including Propeller Hub)—45¼".
WIDTH BETWEEN MOUNTING PADS—11½".
WEIGHT (no oil, but including standard equipment)—285 lbs. (Approx.).

WRIGHT AERONAUTICAL CORPORATION
Paterson, New Jersey, U. S. A.